

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
 (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference BW369M	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/IT2005/000409	International filing date ( <i>day/month/year</i> ) 18 July 2005 (18.07.2005)	Priority date ( <i>day/month/year</i> ) 27 July 2004 (27.07.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant SAES GETTERS S.p.A.			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input checked="" type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

Date of issuance of this report 30 January 2007 (30.01.2007)	
The International Bureau of WIPO 34, chemin des Colombettes 1211 Gencva 20, Switzerland  Facsimile No. +41 22 338 82 70	Authorized officer  Simin Baharlou  e-mail: pt09@wipo.int

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

<p>To:</p> <p style="text-align: center;">see form PCT/ISA/220</p>
--



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**  
(PCT Rule 43bis.1)

<p>Date of mailing (day/month/year) see form PCT/ISA/210 (second sheet)</p>		
<p>Applicant's or agent's file reference see form PCT/ISA/220</p>	<p><b>FOR FURTHER ACTION</b> See paragraph 2 below</p>	
<p>International application No. PCT/IT2005/000409</p>	<p>International filing date (day/month/year) 18.07.2005</p>	<p>Priority date (day/month/year) 27.07.2004</p>
<p>International Patent Classification (IPC) or both national classification and IPC G01N27/64, G01N27/68</p>		
<p>Applicant SAES GETTERS S.P.A.</p>		

**1. This opinion contains indications relating to the following items:**

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

<p>Name and mailing address of the ISA:</p> <p>            European Patent Office            D-80298 Munich            Tel. +49 89 2399 - 0 Tx: 523656 epmu d            Fax: +49 89 2399 - 4465         </p>	<p>Authorized Officer</p> <p>Purdie, D            Telephone No. +49 89 2399-2187</p>
--	--



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IT2005/000409

**Box No. I Basis of the opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material:

a sequence listing  
 table(s) related to the sequence listing

b. format of material:

in written format  
 in computer readable form

c. time of filing/furnishing:

contained in the international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.

3.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IT2005/000409

---

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or  
industrial applicability; citations and explanations supporting such statement**

---

**1. Statement**

Novelty (N)	Yes:	Claims	1-3
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-3
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-3
	No:	Claims	

**2. Citations and explanations**

**see separate sheet**

---

**Box No. VII Certain defects in the international application**

---

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: US-A-5 304 797 (IRIE ET AL) 19 April 1994 (1994-04-19)
- D2: US-A-5 485 016 (IRIE ET AL) 16 January 1996 (1996-01-16)
- D3: US-A-5 420 424 (CARNAHAN ET AL) 30 May 1995 (1995-05-30)

Document D1 discloses an ion mobility spectrometer (see Fig. 1) comprising a corona discharge source (col. 6, lines 25-29). The corona discharge source consists of a first chamber (housing 45), provided with an inlet for a gas to be analyzed (see sample gas 1 and col. 6, lines 10-18). The first chamber has a first opening (in relation with shutter grid 13) for communication between the internal space defined by said first chamber and the reaction zone of an IMS spectrometer.

Contained within the first chamber is a second chamber (chamber 44), which is provided with a communication opening between the first and second chambers (see inlet surrounded by ion extraction electrode 12).

Arranged within the second chamber is a pair of electrodes, one of which is needle shaped (see Fig. 1 and col. 6, lines 25-29).

The subject matter of claim 1 differs from the spectrometer disclosed in D1 in two ways, namely:

- i the second chamber is provided with an inlet suitable for an ultra-pure gas; and
- ii the pair of electrodes and the communication opening are arranged in such a geometrical relationship that there is no optical path between the zone of the corona discharge and the ion detector of the spectrometer.

Thus, the subject-matter of claim 1 is novel over D1.

With regard to the first difference, it is noted that D1 discloses further embodiments in which, in addition to the sample inlet, an ultra-pure gas inlet is connected to the ion source (see the embodiment in Fig. 4, for example). None of these embodiments however

comprises a second chamber contained in the first chamber.

Regarding the second difference, a spectrometer with a pair of electrodes and a communication opening arranged in such a geometrical relationship that there is no optical path between the zone of the corona discharge and the ion detector of the spectrometer is disclosed in document D2 (see Fig. 4). The spectrometer of D2 is, however, different from the spectrometer defined in claim 1, as it is an atmospheric ionisation mass spectrometer and not a ion mobility spectrometer.

It is questionable whether an objection against the inventiveness of each of the above-mentioned differences could be maintained, and for this reason the present authority tends towards a recognition of inventive step. This tendency is increased through the presence of two differences. Thus, taken as a whole, the invention as defined in claim 1 is considered to be inventive.

As claim 1 is considered to be novel and inventive, it follows that the dependent claims are also novel and inventive.

**Re Item VII**

**Certain defects in the international application**

Clarity problems are present in claim 1 due to features of the claim being defined with reference to elements which are not entities of the apparatus, such as the "reaction zone" and the "ion detector".

One way of overcoming the above clarity problem would be to introduce the "reaction zone" and the "ion detector" as specific features into the claim. This would not appear to alter the scope of the claim, as these features are normally present in an ion mobility spectrometer (which, being the subject of the claim, is a feature of the claim).

It is further suggested that if the applicant were to introduce the feature of a "drift zone" (p2, line 22) into claim 1, any objection to the novelty and inventiveness of claim 1 based on disclosures relating to FAIMS spectrometers (as D3) would be further hindered.

The description of D2 in the application (see in particular p7, lines 6-10) would appear to

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/IT2005/000409

be slightly misleading in that it does not appear to relate to the embodiment most relevant to the application, viz. that illustrated in Fig. 4.